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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/631,149

07/31/2003

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SEM225-00/08422

2224

24118 7590 05/13/2009
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EXAMINER

MILLER, DANIEL H

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

05/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/631,149	Applicant(s) BLANKENSHIP ET AL.	
	Examiner DANIEL MILLER	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/5/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/5/2009 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier (UK 1448158) in view of Cramwinckel (U.S. 3,822,556), further in view of Chen [Construction and Building Materials 16 (2002) 313-319; Jian-Shiuh Chen; Evaluation of internal resistance in hot mix asphalt concrete (available on-line 13 Aug. 2002)] and Schmanski (US 5,290,833).

2. Regarding claim 1, Maier teaches a paved surface having 12% natural sand and bitumen binder (page 1 line 70-75 and page 4 line 5-10).

3. The binder contains asphalt and polyamine (see claim 1). Applicant discloses the use of a polyamide additive (remarks 6/6/07), which are similar amine based polymers. Polyamine and Polyamide are generic classes of molecules that can include polymers and neither Maier, nor applicant, teach which specific polymer is used. Further, Regarding claim 2, the binder is considered to be a binder traditionally used to modify an asphalt binder for use in paving surfaces (as claimed).

4. Maier is silent as to the binder being petroleum based, the selection of binder based on climate, or the stability and fatigue levels of the pavement.

5. Cramwinckel teaches asphalt with a bitumen binder that is impermeable to water with a thickness of 2.5 cm (column 1 line 30-35, column 2 line 45-50).

6. Cramwinckel further teaches that the bitumen binder can be prepared from any suitable material (column 2 line 63-68) and can be adapted to the climate conditions (column 3 line 1-4). Further, regarding claim 6, Cramwinckel further teaches the asphalt is impermeable to water (column 1 line 30-35).

7. Regarding claim 6, the layer is considered to be substantially impermeable polymer as claimed.

8. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maier to incorporate a binder that would be appropriate for applications under particular climates as taught by Cramwinckel. Further, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust

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the composition of the aggregate, including choosing from coal and/or petroleum based binders, in order to optimize the stability fatigue level, and resistance to reflective cracking of the pavement for the intended application and to maximize the suitability of the material for particular climates. Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. However, both Maier and Cramwinckel are silent as to the percentage of aggregate less than about 4.75 mm.

10. Chen teaches that it is desirable to select aggregates based on properties of the aggregate to produce high quality paving mixtures (abstract). Specifically, selecting a range of fine aggregate passing through a 4.75 mm sieve is desirable (abstract). Chen teaches preparing several comparative aggregate and binder mixes with a 10%, 20%, 30%, 40%, and 50% aggregate passing through a 4.75 mm sieve respectively (see figures and section 2.1). The 50% mixture of Chen has increased tensile strength over the other samples and low void formation compared to other samples (see figures 2 and 3).

11. Neither of the above references specifically teach a polymer binder even though Maier teaches a polyamide which can be a polymer.

Deleted: which

12. Schmanski teaches an asphalt aggregate comprising sand and a polymer binder (see claim 1 ref.).

13. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the polymer binder in the aggregate of Maier as taught by

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Schmanski to provide excellent compacting of the aggregate and weather resistance (see columns 1-3).

14. The aggregate of Schmanski is further disclosed to have a typical size distribution of particles that encompasses applicant's claimed particle size distribution of 80-100% less than 4.75 mm (0.187 inches; see table 2). Further, Schmanski teaches 30-52 aggregate having a sieve size less than about 1.18 mm (see table 2), which overlaps the claimed range of 40% to about 70% aggregate sized below about 1.18 mm.

15. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maier and Cramwinckel to include particle size distribution of 80-100% less than 4.75 mm as claimed by applicant because Schmanski discloses an overlapping range as being a typical particle size distribution for aggregate and Chen discloses that having 50% or more aggregate with a sieve size less than about 4.75 mm produces a high quality product with increased tensile strength and low void formation (see Chen).

16. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to increase the percentage of aggregate having a sieve size less than about 4.75 mm to a range of about 60% to about 99.8%, as claimed, because one of ordinary skill would expect, based on the data of figure 2 (Chen), that an increase in the percentage would lead to higher tensile strengths and therefore stronger roads.

17. Finally, It would have been obvious to optimize the percentage of aggregate within the disclosed range of Schmanski to produce a durable aggregate that fills the

voids of the aggregate (as desired by Schmanski) and in so doing provide between 40% to about 70% of the aggregate size below about 1.18 mm (a standard sieve size known in the art), as claimed in applicant's claim 10, and one of ordinary skill would expect to produce an even higher quality mixture with high tensile strength and lower void formations based on the teachings of Chen and Schmanski.

18. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier in view of Cramwinckel (U.S. 3,822,556) further in view of Chen [Construction and Building Materials 16 (2002) 313-319; Jian-Shiuh Chen; Evaluation of internal resistance in hot mix asphalt concrete (available on-line 13 Aug. 2002)] and Schmanski (US 5,290,833), as applied to claim 1, and further in view of Malloy et al (U.S. 6,669,773).

19. Maier teaches a paved surface having 12% natural sand and bitumen binder (page 1 line 70-75 and page 4 line 5-10).

20. However, Maier in view of Cramwinckel further in view of Chen, discussed above, are silent as to the aggregate asphalt comprising less than 10% or 5% natural sand.

21. Malloy teaches a synthetic lightweight aggregate (SLA) used as a substitute for sand in paving construction (column 1 line 10-20; column 9 line 10-25). The aggregate has the advantage of being a cheaper recycled material and favored in applications where weight is a concern (column 1 line 26-33 and 48-54).

22. Therefore, since it was known at the time of the invention to use less sand in an asphalt pavement application it would have been obvious to one of ordinary skill in the art to replace all or some of the sand because it can be cheaper and provide a lower density aggregate.

23. It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the composition of the aggregate, including adjusting the percentage of sand in order to optimize the stability and fatigue, and level and resistance to reflective cracking of the pavement for the intended application and to maximize the suitability of the material for particular climates. Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

24. Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

25. In response to applicant's arguments and affidavit it is acknowledged that Maier does not specifically teach a polymer binder even though Maier does teach a polyamide which can be a polymer.

26. Schmanski, has been asserted as part of the rejection and teaches an asphalt aggregate comprising sand and a polymer binder (see claim 1 ref.).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MILLER whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571)272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Miller

/JENNIFER MCNEIL/

Supervisory Patent Examiner, Art Unit 1794